

## SEQUENCE LISTING

<110> Hosted, Jr., Thomas J.  
Horan, Ann C.

<120> Isolation of *Micromonospora carbonacea* var *africana*  
pMLP1 integrase and use of integrating function for  
site-specific integration into *Micromonospora*  
*halophitica* and *Micromonospora carbonacea* chromosome

<130> IN01164K

<140>

<141>

<150> 60/204,670

<151> 2000-05-17

<160> 9

<170> PatentIn Ver. 2.1

<210> 1

<211> 1179

<212> DNA

<213> *Micromonospora carbonacea*

<400> 1

```
gtgtggatcg agaagaacgg gcccggtctac cgcattcggg acctcgttcg cggtaaaaag 60
gtcaccattc agaccgggta tccgacgaag accagcgcca agaatgcgat ggtgcagttc 120
cgtgcggagc agttgcaggg caacgcgctc atgccgcgcg gcggtcagat taccctcgcc 180
gatttcgtgg gggagtggtg gccgagctac gaaaagacgc tgaaaccgac cgccgtgaac 240
tcggagggca accggatccg caaccacctc ctgcccatac tcggccatct cacccttgac 300
gagctggacg ggcaggtcac ccagcagtggt gtcaacgacc tggaggcccg cgtcggccccg 360
tggccggagt ccacgcgggg tcgtcggaag ccgctggcag cgaagacgat cagcaactgc 420
cacggcctgc tgcacacgat ttgcggcgcg gcgatcgcg cgaaacggat caggctcaac 480
ccgtgctctt cgacgatgct gcccggcgcg gagccgaaag agatgaagtt cctgagcgac 540
ccggagatcg gtcggcttat cacggcgctt ccgcccactt ggcgaccgct cgtcatgctg 600
ctggtggcga ccggtctgag gtgggggtgag gcgatcggcc tgcgcgccgg ccgggtcgac 660
ctgctcgccg cgcggccccg gctgaccgtc gtcgagcagc tccaggagct ggccagcacg 720
ggagagctcg tcttcacgac gccgaagacc gcgaagggcc ggcgcacggt cagtttcacc 780
acgaaagtgc ctctactgct tacgccactc atcgccggaa agaaaagtga cgaggtcgtg 840
ttcaccgcgc cgaaaggcgg gatggttaagg acgcgcaatt tccggcggat ctgggtcaag 900
gcgtgcgagg aagccgggct tccgggctta cgcattcacg atctgcggca cactcacgcg 960
gcgatcctga tttctgcgg gcgtcgctg tcggcgatct ccgcccgcct cggtcactcg 1020
tcgatcgcgg tcacggatct gctgtacggg cacctgcgtg aggaggtcga cgaggggatc 1080
ctcgcggcga tcgaggaggc gatggccggc gtccgggctg aggacctgga ggcggaactc 1140
gacgaggagc tgacggacgt gttggccgac gcagcatga 1179
```

<210> 2

<211> 426

<212> DNA

<213> *Micromonospora carbonacea*

<400> 2

```
atgcgcaaca caccgggggt ggggcgcggc acatgggccc catacgtcct caccgcccgc 60
gagcgcgccg gactgaccaa gagcgagttg gccaggcgca tccagaagga ccggggccacc 120
gtcggccggt gggaggacgg caagaaccgg cccgacgacg cggacctcgt tgcccgcgtc 180
gcccaggtgc tcggcctcga cctcgacgaa gccctcgccg ccgcaggtct gcgccccggc 240
gtcaccgccg cagcgacccc aaccatggac ctggacgagg aaatcgagct ggtccgcacc 300
```

gacccaagc tggacgagga catgaagcgg cgcatcatcg ccctaatacct ggagcgccgt 360  
 gagcgcgaca aggcggcggc gatcgaggaa accaagcggc tcatcgacct gttccgcccgt 420  
 agctga 426

<210> 3  
 <211> 34  
 <212> DNA  
 <213> Micromonospora carbonacea

<400> 3  
 ccccggtacg ggttcaattc ccatcagtca cccg 34

<210> 4  
 <211> 241  
 <212> DNA  
 <213> Micromonospora carbonacea

<400> 4  
 tattagtcgg cagcgcggcc ggccccggcg gagcggagcg catgggtggct gtagctcagt 60  
 tggcagagca cggggttggt gtccccggtg tcgtgggttc aattcccatc agtcacccgt 120  
 acacgaaggc cccctccact cggagggggc cttcggcggt cctgaggggt cgcggtcagg 180  
 cggtcggctc ggcgctgggg gactcggccc cgtcggcggg agtggcctcg gcgtccgggg 240  
 a 241

<210> 5  
 <211> 243  
 <212> DNA  
 <213> Micromonospora carbonacea

<400> 5  
 tggcgggggt gtggctatta ttagtcgcga cgccgcccgg ccccgccgga gcggagcgca 60  
 tgggtggctgt agctcagttg gcagagcacc ggggttggtt cccggttggt gtgggttcaa 120  
 ttcccatcag tcaccgggca agtggatcta ctccacagca gatcaggccc cctccgaaga 180  
 gggggcctga tgcgtcatag gggacaggta ggggaactca acccccggct ccttgctcgc 240  
 gtc 243

<210> 6  
 <211> 247  
 <212> DNA  
 <213> Micromonospora carbonacea

<400> 6  
 taggggaatc cactccggag acgcccggag caatccggag catgacggag caaccagcag 60  
 gtcaggtggc ctggtgacct cctgaccagg gccccggtac gggttcaatt cccatcagtc 120  
 acccgtacac gaaggccccc tccactcgga gggggccttc ggcgttcctg aggggttcgcg 180  
 gtcaggcggg cggctcggcg ctgggggact cggccccgct ggcggggagt gcctcggcgt 240  
 ccgggga 247

<210> 7  
 <211> 255  
 <212> DNA  
 <213> Micromonospora halophytica

<400> 7  
 tttctccgca cccgcccggg gcgttcgacc ggggtgcggcg gcatgggtggc tgtagctcag 60  
 ttggcagagc accgggttggt ggtccccggtt gtcgtgggtt caattcccat cagtcacccc 120

```

aggtaagacc caggtcaggg ccggttctca ccggccctga cgcattttca ggggcatggt 180
gggggcgcta ccgggggtgg ggtgtctcac cgcgagccag catctcgatc aggcgatcga 240
gccggcgctg ccggg                                     255

```

<210> 8

<211> 315

<212> DNA

<213> Micromonospora halophytica

<400> 8

```

tttctccgca cccgcccggg gcgttcgacc ggggtgcggcg gcatgggtggc tgtagctcag 60
ttggcagagc accgggttgt ggtcccgggt gtcgtgggtt caattcccat cagtcacccg 120
gcaagtggat ctactccaca gcagatcagg cccctccga agagggggcc tgatgcgtca 180
taggggacag gtaggggaac tcaacccccg gtccttgct cgcgtcgggt catgccgtcc 240
gcgtaccctt ccgcgtacct ggccctctcc cgttcctcga tctcggcggc gagctgatcg 300
cgcaggtgcg cctcc                                     315

```

<210> 9

<211> 260

<212> DNA

<213> Micromonospora halophytica

<400> 9

```

taggggaatc cactccggag acgcccggag caatccggag catgacggag caaccagcag 60
gtcaggtggc ctgttgacct cctgaccagg gcccgggtac gggttcaatt cccatcagtc 120
accccaggta agaccaggt cagggccggt tctcaccggc cctgacgcat tttcaggggc 180
atggtggggg cgctaccggg ggtgggggtg ctcaccgcga gccagcatct cgatcaggcg 240
atcgagccgg cgctgccggg                                     260

```

CCGGGCGCTG